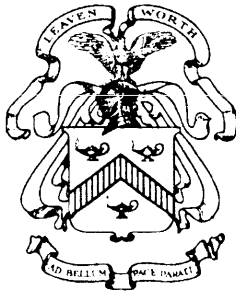
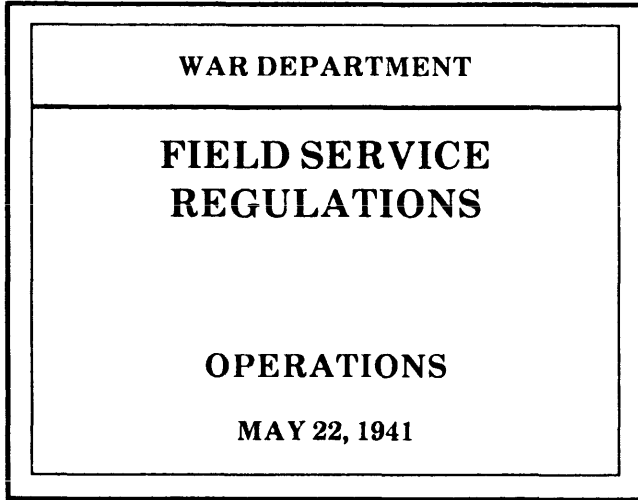


FM 100-5



A MILITARY CLASSIC REPRINT
U.S. ARMY COMMAND AND GENERAL
STAFF COLLEGE PRESS

FORT LEAVENWORTH, KANSAS
1992

U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE PRESS

In September 1991, the commandant of the U.S. Army Command and General Staff College at Fort Leavenworth authorized the establishment of the Command and General Staff College (CGSC) Press. The CGSC Press has the following missions:

- To provide an outlet for the professional publication of monographs and book-length works on all subjects of interest to professional officers.
- To aid in professional military education at all levels of the U.S. Army and other military services, foreign as well as domestic.
- To promote and support the advanced study of the theory, history, and practice of the military art by professional officers and other military experts.
- To promote and support the professional development of the CGSC faculty and faculties of other institutions of higher military education in the United States and abroad.

PREFACE

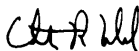
On 22 May 1941, the War Department published a new version of FM 100-5, *Operations*. This manual superseded a tentative 1939 version. The most recent official edition had been the Field Service Regulations dated 1923.

The Army of 1941 desperately needed up-to-date doctrinal guidance. The world was already engulfed in war, and the United States had begun to mobilize. Thus, the Army was eight times larger than it had been in 1939. Moreover, it had also embarked on a modernization program that affected virtually every facet of military activity.

The 1941 edition of FM 100-5 encapsulates the state of Army doctrine on the eve of America's entry into World War II. This is the doctrine the Army took into the great Louisiana maneuvers of 1941. Later, it also guided the American soldiers through combat in places as diverse as New Guinea and Tunisia. Not until June 1944 did a new manual supersede this one.

In 1991, the Army chief of staff directed that a new series of "Louisiana maneuvers" begin in 1994. Unlike the 1941 exercises, these will involve computer simulations rather than real troops. They are intended to prevent postwar unpreparedness, whereas the 1941 maneuvers were part of a prewar mobilization. Both maneuvers, however, share the goal of enhancing the Army's readiness through the means of simulated combat. To facilitate an understanding of the historical context underlying the 1994 maneuvers, the CGSC Press offers this reprint of the field manual that served the Army in 1941.

The 1941 version of FM 100-5 has long been recognized as a classic piece of doctrine writing, remarkable for its clarity of concept and prose. It is also a valuable historical artifact, preserving as it does the doctrinal thought of the Army at a critical juncture in history.



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FM 100-5

**FIELD SERVICE
REGULATIONS**



OPERATIONS

**Prepared under direction of the
Chief of Staff**



**UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1941**

For sale by the Superintendent of Documents, Washington, D. C. - Price 35 cents

WAR DEPARTMENT,
WASHINGTON, May 22, 1941.

FM 100-5, Field Service Regulations, Operations, is published for the information and guidance of all concerned. It contains the doctrines of leading troops in combat and tactics of the combined arms and constitutes the basis of instruction of all arms and services for field service. Additional doctrines pertaining to the defense of coast lines and landing operations on hostile shores are discussed in other manuals.

Field Service Regulations will be interpreted in the light of FM 27-10, Rules of Land Warfare. FM 100-5, Field Service Regulations, Operations, should be studied in connection with FM 100-10, Field Service Regulations, Administration, and FM 100-15, Field Service Regulations, Larger Units.

While the fundamental doctrines of combat operations are neither numerous nor complex, their application is sometimes difficult. Knowledge of these doctrines and experience in their application provide all commanders a firm basis for action in a particular situation. This knowledge and experience enable the commander to utilize the flexible organization with which he is provided to group his forces into task units most suitable for the accomplishment of his mission.

Set rules and methods must be avoided. They limit imagination and initiative which are so important in the successful prosecution of war. They provide the enemy a fixed pattern of operations which he can more easily counter.

It is a function of command to coordinate the tactics and technique of the various arms and services so as to develop in the forces employed on a given task the teamwork essential to success.

[A. G. 062.11 (1-9-41).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

E. S. ADAMS,
Major General,
The Adjutant General.

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TABLE OF CONTENTS

	Paragraphs	Page
CHAPTER 1. ORGANIZATION.		
Territorial organization.....	1-6	1
Organization of troops.....	7-24	2
CHAPTER 2. ARMS AND SERVICES.		
General.....	25-26	5
Infantry.....	27-35	5
Cavalry.....	36-46	6
Field Artillery.....	47-58	8
Coast Artillery Corps.....	59-68	10
Air Corps.....	69-83	12
Corps of Engineers.....	84-90	14
Signal Corps.....	91-94	16
Chemical Warfare Service.....	95-96	17
CHAPTER 3. LEADERSHIP.		
	97-111	18
CHAPTER 4. THE EXERCISE OF COMMAND.		
Doctrines of combat.....	112-118	22
Command.....	119-126	23
Estimate of the situation.....	127-132	25
Terrain.....	133-138	26
Conduct in battle.....	139-144	29
Staff.....	145-148	30
Combat orders.....	149-159	30
Command posts.....	160-168	33
Signal communication.....	169-192	35
CHAPTER 5. INTELLIGENCE AND RECONNAISSANCE.		
General.....	193-195	40
Information collecting agencies.....	196-202	40
Organization of reconnaissance.....	203-213	42
Execution of reconnaissance.....	214-222	44
Transmission of information.....	223-232	46
CHAPTER 6. SECURITY.		
General.....	233-249	48
Security against mechanized forces.....	250-254	50
Security against chemicals.....	255-260	52
Antiaircraft security.....	261-273	52
Counterreconnaissance.....	274-278	55
Counterintelligence.....	279-288	57
CHAPTER 7. HALTS AND SECURITY DURING HALTS.		
Halts.....	289-290	60
Shelter.....	291-296	60
Outposts.....	297-322	61
Cavalry and mechanized outposts.....	323-325	66
Security measures within shelter areas.....	326-333	67
CHAPTER 8. TROOP MOVEMENTS.		
General.....	334-343	69
Shuttling.....	344-349	71
Tactical considerations.....	350-373	72
March technique.....	374-398	78
Movements by rail.....	399-414	84
Movements by air.....	415-418	88
Security during movement.....	419-449	89

TABLE OF CONTENTS

	Paragraphs	Page
CHAPTER 9. THE OFFENSIVE.		
Section I. General.		
The objective.....	450-453	97
Distribution of forces.....	454-480	98
Forms of offensive action.....	461-473	99
Frontages and depths.....	474-475	103
Reserves.....	476-482	104
Coordination.....	483-508	105
II. Attack in war of movement.....	509-521	112
III. Attack of an organized position.		
Preliminary operations.....	522-526	116
Preparations for attack.....	527-534	117
Conduct of the attack.....	535-552	120
The assault.....	553	125
Continuation of the attack.....	554-560	125
Reliefs to continue the attack.....	561-572	127
IV. Attack from the defensive.		
Planned defensive-offensive.....	573-575	130
The counteroffensive.....	576-577	131
V. Pursuit.....	578-580	131
VI. Security in the offensive.....	591-594	135
VII. Termination of offensive action.....	595-596	136
CHAPTER 10. THE DEFENSIVE.		
Section I. Organization for defense.		
General.....	597-598	137
Reconnaissance and selection of position.....	599-609	137
Tactical organization.....	610-626	141
Organization of fire.....	627-633	145
Organization of the ground.....	634-649	148
II. Conduct of the defense.....	650-671	152
III. Termination of the defense.....	672-673	158
IV. Security in the defense.....	674-678	159
V. Antimechanized defense.....	679-695	160
CHAPTER 11. RETROGRADE MOVEMENTS.		
General.....	696-702	165
Withdrawal from action.....	703-724	166
Retirement.....	725-742	170
Security during retirement.....	743-751	174
Delaying action.....	752-773	176
CHAPTER 12. SPECIAL OPERATIONS.		
Section I. Attack of a fortified locality.		
General.....	774-776	182
Preparation and preliminary operations.....	777-794	183
The break-through.....	795-808	188
II. Operations at river lines.		
General.....	809-811	192
Attack to force crossings.....	812-842	193
Defense against crossings.....	843-855	200
III. Night combat.....	856-875	204
IV. Combat in towns.....	876-884	209
V. Combat in woods.....	885-893	211
VI. Mountain operations.		
General.....	894-908	213
Reconnaissance.....	909	217
Marches.....	910-914	217

TABLE OF CONTENTS

	Paragraphs	Page
CHAPTER 12—(Continued.)		
Section VI—Continued.		
Offensive combat.....	915-923	219
Defensive operations.....	924-984	222
VII. Combat in snow and extreme cold.		
General.....	935-946	225
Conduct of operations.....	947-973	227
VIII. Combat at defiles.....	974-978	233
IX. Jungle operations.....	979-984	235
X. Desert operations.....	985-989	237
XI. Partisan warfare.		
General.....	990-995	238
CHAPTER 13. TROOPS TRANSPORTED BY AIR.		
General.....	996-1002	241
Missions.....	1003-1004	242
Planning operations.....	1005-1015	243
Conduct of operations.....	1016-1023	245
Countermeasures.....	1024-1029	247
CHAPTER 14. AIR TASK FORCES	1030-1042	249
CHAPTER 15. THE DIVISION.		
Section I. Infantry division.....	1043-1049	253
II. Motorized division.....	1050-1054	255
III. Cavalry division.....	1055-1069	257
IV. Armored division.		
Organization.....	1070-1087	263
Reconnaissance.....	1088-1089	266
Security.....	1090-1099	266
Marches.....	1100-1101	268
Offensive operations.....	1102-1139	269
Defensive operations.....	1140-1144	276
CHAPTER 16. GHQ TANK UNITS	1145-1151	278
INDEX		281

FIELD SERVICE REGULATIONS

OPERATIONS

(These regulations supersede FM 100-5, Tentative Field Service Regulations, Operations, October 1, 1939.)

CHAPTER 1

ORGANIZATION

TERRITORIAL ORGANIZATION

■ 1. The *theater of war* comprises those areas of land, sea, and air which are, or may become, directly involved in the conduct of war.

■ 2. A *theater of operations* is an area of the theater of war necessary for military operations and the administration and supply incident to military operations. The War Department designates one or more theaters of operations.

■ 3. A *combat zone* comprises that part of a theater of operations required for the active operations of the combatant forces.

It is divided into army, corps, and division areas, each comprising the zone of operations of the unit to which it pertains.

■ 4. A *communications zone* is that part of a theater of operations, contiguous to the combat zone, which contains the lines of communication, establishments for supply and evacuation, and other agencies required for the immediate support and maintenance of the field forces in the theater of operations.

■ 5. The *zone of the interior* comprises the area of the national territory exclusive of areas included in the theater of operations.

■ 6. The details of organization of the theater of war and its territorial subdivisions are given in FM 100-10, FM 100-15, and in instructions relative to mobilization published by the War Department. As indicated therein, definite territorial responsibilities are assigned to GHQ, theater commanders, and army commanders.

ORGANIZATION OF TROOPS

- 7. Troop organization includes command, combat (tactical), and service (administrative) elements. Most tactical units contain service elements and have some administrative functions. But a unit is not designated as administrative unless it performs all or nearly all administrative functions for its components.
- 8. The *field forces* consist of a general headquarters (GHQ), one or more armies, the GHQ air force, an armored force, and a GHQ reserve.
- 9. The *GHQ air force* is composed of a headquarters and a variable number of squadrons and groups of combat aviation and various other types which may be organized into wings or larger commands. It also has air base organizations comprising troops of various arms and services for security and administration.
- 10. An *armored force* is a combined force comprising elements transported in wheeled or track-laying type motor vehicles, the bulk of which is provided either with partial or complete armor.
- 11. The *GHQ reserve* is composed of units of the various arms and services not otherwise specifically assigned which are held for use as reinforcements or for separate missions under GHQ.
- 12. Several armies may be organized into a *group of armies* under a designated commander. Such a group is primarily a tactical command.
- 13. An *army* is composed of a headquarters, certain organic army troops, a variable number of corps, and a variable number of divisions, of which some or all may be assigned from time to time to corps. The army is an administrative as well as tactical unit.
- 14. A *corps* consists of a corps headquarters, certain organic corps troops, and such infantry (cavalry, armored) divisions as may be assigned to it. The corps is primarily a tactical unit.
- 15. The *division* is the basic large unit of the combined arms. It comprises a headquarters, infantry (cavalry)

(armored) units, field artillery units, and certain troops of other arms and services. It is an administrative as well as a tactical unit.

■ 16. The term *large units* as used in this manual refers to divisions and larger units. A more detailed discussion of the larger units is found in FM 100-15.

■ 17. In each arm or service, the *company* (troop, battery) or similar unit is the basic administrative unit. It contains all the agencies required for subsistence, interior economy, and administration. For purposes of tactical control and training, each company is subdivided into smaller units.

■ 18. The *battalion* (squadron) or similar unit is the basic tactical unit. It is composed of a headquarters, two or more companies or similar units, and certain special units, organic and attached. Unless organized as a separate battalion it has few administrative functions.

■ 19. The *regiment* is both an administrative and a tactical unit. Ordinarily, it consists of a headquarters, a headquarters company and service company, either separate or combined, and two or more battalions or similar units. It may also include a company or similar unit in which certain special weapons and means are assembled for tactical purposes, economy, instruction, and administration.

■ 20. A *brigade* is ordinarily a tactical organization composed of two or more regiments of the same arm, together with a headquarters and headquarters company or similar unit. When organized as a separate brigade it may include units of other arms and services and may have administrative functions.

■ 21. For organization of the Air Corps, see paragraph 76.

■ 22. For economy and flexibility in the assignment to tasks, the means not habitually required by a unit are pooled and organically assigned to a higher unit. These means may then be allotted to subordinate units in accordance with their requirements for particular operations.

■ 23. To insure unity of effort or increase readiness for combat, part or all of the subordinate units of a command may be formed into one or more temporary tactical groupings (task forces), each under a designated commander. In

each, the unity of tactical organizations is preserved as far as practicable. In an infantry division, the term *combat team* is usually applied to a task force consisting of a regiment of infantry, a battalion of light artillery, and essential units of other arms in suitable proportion.

■ 24. The details of organization of the field forces and the amounts and kinds of transportation and major items of equipment are published in current War Department Tables of Organization and Tables of Basic Allowances. The organization of large units and pertinent technical and logistical data are given in FM 101-10.

CHAPTER 2

ARMS AND SERVICES

GENERAL

■ 25. The units comprising the field forces belong to the arms and the services.

The *arms* consist of the Infantry, the Cavalry, the Field Artillery, the Coast Artillery Corps, the Air Corps, the Corps of Engineers, and the Signal Corps. The Chemical Warfare Service also has combat units of chemical troops.

The *services* are charged with serving the line of the Army by performing the necessary functions of administration. For administrative functions of the arms and services, see FM 100-10.

■ 26. No one arm wins battles. The combined action of all arms and services is essential to success. The characteristics of each arm and service adapt it to the performance of its special function. The higher commander coordinates and directs the action of all, exploiting their powers to attain the ends sought.

INFANTRY

■ 27. The *Infantry* is essentially an arm of close combat. Its primary mission in the attack is to close with the enemy and destroy or capture him; in defense, to hold its position and repel the hostile attack.

■ 28. Infantry fights by combining fire, movement, and shock action. By fire, it inflicts losses on the enemy and neutralizes his combat power; by movement, it closes with the enemy and makes its fire more effective; by shock action, it completes the destruction of the enemy in close combat.

■ 29. Infantry is capable of limited independent action through the employment of its own weapons. Its offensive power decreases appreciably when its freedom of maneuver is limited or when it is confronted by an organized defensive position. Under these conditions or against a force of the combined arms, the limited firepower of Infantry must be adequately reinforced by the support of artillery, tanks, com-

bat aviation, and other arms. The defensive power of Infantry reaches a maximum when it occupies an organized defensive position or when the enemy's freedom of maneuver is restricted.

■ 30. The principal weapons of Infantry are the rifle and bayonet, the automatic rifle, and the machine gun. Other weapons include mortars, pistols, grenades, light antitank weapons, and antitank guns.

■ 31. Light antitank weapons and antitank guns are allotted to infantry regiments; antitank guns are the primary armament of antitank companies and battalions.

■ 32. The intrenching tool is an essential article of equipment of the infantry soldier. It is important in attack as well as in defense in order to hold ground without excessive casualties during interruptions of the advance.

■ 33. Infantry can maneuver on difficult ground. Its ability to move in small and inconspicuous formations enables it to take advantage of covered routes of approach and minor accidents of the terrain. It must utilize the terrain intelligently to attain maximum fire effect, to conserve personnel, to conceal movement, and to facilitate the maneuver and employment of reserves.

■ 34. The mobility of Infantry has been greatly increased by the use of motor transport for the movement of troops, equipment, and supplies. Infantry units completely motorized organically or by attachment are specially suited for the close support of mechanized units or for prompt dispatch as mobile reserves to distant areas accessible by road.

■ 35. Infantry troops, with equipment and supplies, may also be transported by aircraft to seize decisive objectives or to operate in the enemy's rear area.

CAVALRY

■ 36. *Cavalry* consists of highly mobile ground units, horse, motor, and mechanized. Horse units may be transported in trucks or semitrailers in order to increase their mobility or to conserve animals.

■ 37. Cavalry is characterized by a high degree of battlefield mobility. Its special value is derived from the rapidity and

ease with which its fire power can be moved from one position or locality to another. (See also ch. 15.)

■ 38. Cavalry is capable of offensive combat; exploitation and pursuit; seizing and holding important terrain until the arrival of the main forces; ground reconnaissance; ground counterreconnaissance (screening), both moving and stationary; security for the front, flanks, and rear of other forces on the march, at the halt, and in battle; delaying action; covering the retrograde movements of other forces; combat liaison between large units; acting as a mobile reserve for other forces; harassing action; and surprise action against designated objectives deep in hostile rear areas.

■ 39. Cavalry obtains its best results by the rapidity and flexibility of its methods in attack and defense rather than by the sustained offensive or defensive operations that are required of Infantry. Its missions should be selected accordingly. It should not ordinarily be employed against objectives which require the sustained power of Infantry. When no suitable or necessary missions exist for cavalry, it should be held in reserve, awaiting the opportunity for its use.

■ 40. Cavalry fights on a relatively broad front and in slight depth. In offensive combat, relatively weak forces may contain a less mobile enemy on the front while the principal forces strike in flank and rear.

■ 41. Cavalry executes missions of ground reconnaissance and security. In cooperation with the Air Corps, Cavalry locates the enemy, maintains contact with him, and procures essential information for the higher commander. Security missions include protection against ground attack and screening from ground observation.

■ 42. The efficiency of Cavalry depends in great measure upon the condition of its mounts and mechanized vehicles. Provision must be made for the rest and subsistence of animals and for the maintenance and upkeep of vehicles.

■ 43. *Horse cavalry* can operate over almost any terrain and under all conditions of weather. It is equipped with weapons similar to those of Infantry and has considerable fire power; it is provided with means for rapid signal communication, scout cars for reconnaissance, and motor transport for supply.

Horse cavalry habitually maneuvers mounted, but ordi-

narly fights on foot. As a rule, mounted maneuver is combined with dismounted action.

■ 44. *Mechanized reconnaissance units* are pushed well forward and to the flanks. They may be reinforced by armored or motorized units, heavy in fire power in order to delay or block hostile armored or motorized threats.

■ 45. The *cavalry regiment, horse and mechanized*, contains both porté horse units and mechanized reconnaissance units. Its primary mission is continuous ground reconnaissance. It may be used for any suitable cavalry mission. It should be reinforced when serious combat is anticipated.

■ 46. Cavalry may be attached to, or may be an organic part of, an infantry division; as such it is designated *division cavalry*. Its primary mission is continuous ground reconnaissance. Security and screening are secondary missions. It may be used for liaison during movement and combat.

FIELD ARTILLERY

■ 47. *Field Artillery* contributes to the action of the entire force through the fire support which it renders other arms. It has two principal missions in combat:

a. It supports infantry (cavalry) (armored) units by fire, neutralizing or destroying those targets which are most dangerous to the supported arms.

b. It gives depth to combat by counterbattery fire, by fire on hostile reserves, by restricting movement in rear areas, and by disrupting hostile command agencies.

■ 48. Artillery fire possesses great power of destruction and neutralization. It compels hostile troops in the open to adopt widely deployed formations and has great moral effect. Fire from curved trajectory weapons reaches objectives deflated against flat trajectory weapons or lacking adequate overhead cover.

■ 49. Artillery fire possesses a high degree of *flexibility*. Field Artillery is capable of intervening over a zone of great width and depth, and of rapidly shifting and concentrating its fire without changing its positions. This characteristic makes it possible to concentrate the fire of large masses of Field Artillery under a common fire direction. Through the maneuver of artillery fire, commanders possess a powerful

means of influencing the course of combat. The efficiency with which artillery fires are maneuvered is dependent upon adequate control, close liaison with supported troops, sufficient observation, and dependable signal communication.

■ 50. In order to carry out its principal combat missions, division field artillery is ordinarily subdivided for combat so that certain units are assigned to the *direct support* of specified infantry (cavalry) (armored) units and the remainder is retained in *general support* of the division as a whole.

■ 51. The assignment of direct support missions to field artillery units insures close cooperation with the supported units and enables such artillery to act with greater promptness in meeting the requirements of a rapidly moving situation on the front of the supported units. A field artillery unit in direct support establishes liaison and signal communication with the supported unit and as far as possible executes the missions requested by the supported unit. Direct support artillery changes position when necessary to deliver the supporting fires requested, and to maintain close liaison with the supported unit.

■ 52. Whenever the situation permits, both direct support and general support artillery are retained under centralized control. Field Artillery operates most effectively in this manner. However, the division commander frequently cannot efficiently control the fire of all of his artillery because of the character of the operations, unusual extension of frontage, difficulties of terrain, lack of suitable observation, or insufficiency of signal communication. In such situations he should promptly attach artillery to the infantry (cavalry) (armored) units which it is to assist.

■ 53. Corps (army) field artillery may be retained under corps (army) control or part or all of it may be attached to divisions (corps). Units held under corps (army) control may be directed to furnish special assistance to designated divisions (corps).

■ 54. *Division artillery* is most effective in fire on unprotected personnel. Its principal mission is the support of infantry (cavalry) (armored) units. It is employed also to neutralize enemy observation, to interdict hostile movements, and to

assist corps artillery in counterbattery. It must be prepared to engage promptly hostile tanks within its field of fire.

■ 55. The *corps artillery* has for its principal mission the neutralization or destruction of the hostile artillery. It is also employed in the destruction of hostile defenses, in long range interdiction fire, and in reinforcing the fires of division artillery. Artillery observation units (sound and flash) are included in the corps artillery.

■ 56. The *army artillery* includes only a headquarters and such units as are allotted from time to time by GHQ and retained under the direct control of the army commander for support of the army as a whole. It has for its principal missions distant interdiction and destruction fire, and reinforcement of the fire of corps artillery.

■ 57. The *GHQ reserve artillery* includes artillery firing units of various classes and artillery observation units. These units are habitually allotted to armies for employment under the army commander or for reallocation to lower units.

■ 58. When occasion requires, particularly when there is a great massing of Field Artillery, temporary groupings of field artillery units may be formed for convenience in the execution of missions. These groupings are based upon the nature of the mission to be executed rather than upon type or caliber. Tactical unity is, as far as practicable, respected in the composition of groupings.

COAST ARTILLERY CORPS

■ 59. The *Coast Artillery Corps* is characterized by the great amount of fire it can deliver against naval and air targets. Its armament comprises fixed and mobile seacoast artillery, fixed and mobile antiaircraft artillery, and submarine mines.

■ 60. In the defense of coast lines the missions of the Coast Artillery Corps are—

a. In conjunction with the Air Corps and the Navy, to protect the fleet (or detachments) while at, entering, or debouching from its bases; to defeat naval and air attacks against harbor defenses, naval bases, cities, or other important areas.

b. To support (with mobile seacoast artillery and antiaircraft artillery) the Infantry and the other arms in beach defenses.

- 61. In field operations, mobile seacoast artillery may serve as army or GHQ reserve artillery.
- 62. *Seacoast artillery* has great power and range and is especially equipped and trained to fire at moving naval targets.
- 63. *Fixed seacoast artillery* is protected from naval and air attack by fortifications. Its stability permits great accuracy of fire. Its elaborate and precise fixed equipment permits highly effective fire control and fire direction. Seacoast artillery is organized into groups and groupments in order to develop the maximum fire power and provide efficient fire direction.
- 64. *Mobile seacoast artillery* comprises railway, truck-drawn, and tractor-drawn artillery. Off the battlefield, these types are capable of moving long distances at fairly rapid rates. On the battlefield their mobility is low and they require a considerable time for emplacement. Mobile seacoast artillery provides additional gunfire for existing harbor defenses and is used in conjunction with other forces to protect harbors or coastal areas for which no permanent defenses have been provided.
- 65. To combat hostile aircraft, *antiaircraft artillery* is equipped with antiaircraft guns, automatic weapons, searchlights, detectors, sound-locators, and the equipment required for observation, fire control, and signal communication.
- 66. *Mobile antiaircraft artillery* in conjunction with the Air Corps supports and protects the other arms against hostile air observation and attack (see par. 81). It reinforces the antiaircraft measures of other troops, protects the vital elements of a command, and in rear areas protects airdromes and other sensitive points. When distance precludes the centralized tactical control of antiaircraft artillery units, the commander of the force may attach antiaircraft units to subordinate elements of his command, or may detach units to protect vital installations. It is so equipped that it can execute antitank and other ground missions when necessary.
- 67. An essential agency of antiaircraft artillery is its *intelligence service*. This service gathers and transmits information of the enemy's air activities for use in connection with the employment of the antiaircraft artillery units. The *aircraft*

warning service also provides the antiaircraft artillery with information regarding hostile aircraft. Rapid interchange of information between these services is essential.

■ 68. Coordinated antiaircraft defense of areas is facilitated by the organization of commands for air defense.

AIR CORPS

■ 69. The *Air Corps* combats hostile aircraft, operates in conjunction with ground and naval forces in land and sea warfare, and conducts independent attacks against enemy objectives on land and sea.

■ 70. Air operations may be restricted by hostile air force operations, by antiaircraft measures, by the lack of air bases, and by adverse weather conditions.

■ 71. The mobility, speed, and range of aircraft make possible their rapid intervention at critical points in a theater of operations, rapid movements between widely separated theaters (subject to availability of bases and service and maintenance personnel), and deep incursions into enemy territory.

The operating range and firepower, including bomb load, vary inversely one with the other, depending as they do upon the distribution of the useful load between fuel and ammunition.

■ 72. Tactical missions of aviation include air attack against surface matériel and personnel objectives, air fighting against hostile aircraft, reconnaissance and observation, mapping, and transport.

■ 73. The term *combat aviation* refers to bombardment and pursuit aviation. The term *bombardment aviation* is applied to units whose primary function is the attack of surface objectives. The term *pursuit aviation* is applied to units whose primary function is air fighting.

■ 74. The term *reconnaissance aviation* is applied to units whose primary function is reconnaissance of distant objectives. The term *photographic aviation* is applied to units whose function is photographic reconnaissance and air mapping photography. The term *observation aviation* is applied to units whose primary functions are reconnaissance and observation of near objectives, observation of artillery fire, and maintaining contact between elements of our own ground

forces. Balloon units are included within the term observation aviation.

■ 75. *Transport aviation* is employed to transport Air Corps personnel, certain Air Corps supplies, special units of Infantry and other troops dispatched on distant missions in friendly or hostile territory and emergency supplies to fast-moving or isolated ground units.

■ 76. The basic administrative and tactical unit of the Air Corps is the squadron. The group, composed of two or more squadrons of a single class (such as bombardment or pursuit) of aviation, is the principal tactical unit and contains all the essential elements necessary for operation, maneuver, and combat. The next higher Air Corps unit is the wing which consists of two or more groups of either the same or different classes of aviation.

■ 77. Military aviation is assigned to the GHQ air force, to oversea departments, to corps and larger units, to the zone of the interior or important areas, or may be held in GHQ reserve. (See par. 11.)

The aviation organically assigned to corps and armies is generally limited to observation units.

■ 78. The operations of both surface and air forces are directed to the attainment of a common objective. Missions which do not contribute to the attainment of the common objective are avoided.

■ 79. In the hands of the higher commanders, combat aviation constitutes a powerful means for influencing battle. The hostile rear area may frequently be the most favorable zone of action for combat aviation, since operations in this area permit the full utilization of striking power against concentrated targets with minimum losses and maximum results. On the other hand, massed air attack in direct support of the ground troops will often be required to obtain quick and decisive results. By a careful estimate of each situation, the higher commander must determine *where* and in *what* strengths the combat aviation will be employed to assure the accomplishment of the mission.

Support by combat aviation is also required by mechanized and motorized units, particularly when operating beyond the range of friendly artillery. In all cases, the effectiveness of

air support of ground troops is dependent upon careful coordination, close cooperation, and rapid signal communication.

■ 80. GHQ may direct all or part of its combat aviation to support the ground units as a whole or to support particular ground units. In either case, the aviation operates to further the mission of the supported unit and receives its missions and objectives from the commander of the forces which it is supporting. When, however, the tactical situation makes it impracticable for aviation so controlled to render effective support, GHQ should unhesitatingly attach for definite operations part or all of the aviation to units of the ground forces.

For further discussion of the operations of the GHQ Air Force, see FM 100-15.

■ 81. Because of the speed and powers of evasion inherent in all aircraft, air fighting is generally of brief duration and the results are often indecisive. As a result, unless greatly superior, aviation is incapable of controlling the air in the same sense that surface forces can control an area and can therefore reduce hostile air operations only to a limited extent. The desired coordination of all antiaircraft defense measures in any large area is usually effected by the organization of a command for air defense. Operations of aircraft in defense of ground troops and installations must be coordinated with those of the antiaircraft artillery. This applies particularly to the employment of pursuit aviation which is designed primarily for defensive missions in the antiaircraft security of important areas and ground installations, and the protection of ground troops and their observation aviation beyond the range of antiaircraft artillery.

■ 82. Aircraft communicate with the ground by various means, including radio, drop and pick-up messages, sound and visual signals, and, in the case of the balloon, telephone.

■ 83. Air bases, suitably located, are essential for the operations of heavier-than-air aviation. (See FM 100-10.)

CORPS OF ENGINEERS

■ 84. The *Corps of Engineers* has the primary missions of construction and demolition to increase the combat effectiveness of troops, facilitate their movement, and hinder the movement of the enemy.

■ 85. Engineers increase the combat power of other arms by performing combat missions, by technical assistance in the construction of protective works and camouflage, and by the supply of necessary equipment requiring special equipment and training.

Combat engineers participate actively in the penetration of hostile obstacles and the capture of fortified localities, and in the defense of road blocks or mine fields. Engineers may be assigned the task of constructing rearward defensive positions.

Adequate and timely engineer support in the movement and operations of mechanized and motorized units is of special importance.

Engineers are attached to units of other arms when such units cannot otherwise be given adequate engineer support.

■ 86. Important engineer missions include the construction, improvement, and maintenance of routes of communication, including ferrying and bridging operations; the preparation of landing fields; and the elimination of obstacles to movement, including the demolition of permanent works and the destruction of mine fields and wire entanglements.

The mobility and maneuverability of the field forces and the efficiency of their supply depend largely on the successful execution of these missions.

■ 87. The mission of hindering enemy movement is often of equal importance. The inherent mobility of enemy motorized and mechanized forces must be countered by coordinated and intensive use of obstacles and demolition. Obstacles may consist of hastily erected barriers, such as road blocks and mine fields, as well as of deliberately prepared zones of obstacles.

■ 88. The engineers make, reproduce, and supply maps and map substitutes, including those produced from air photographs.

■ 89. Special engineer missions include camouflage, topographic work, water supply, railway operation, the operation of power plants, water and sewage systems and certain other utilities, and the supply and repair of engineer materials and equipment.

■ 90. For the classification and detailed operations of engineer troops, see FM 100-10.

SIGNAL CORPS

■ 91. Signal Corps troops have the primary combat mission of providing signal communication for the command to which they are assigned.

■ 92. Signal Corps troops assigned to divisions, corps, and armies comprise *construction units* for the installation of wire circuits; and *operating units* for the installation of wire centrals and radio stations, and the operation of message centers, messenger, wire, radio, and visual communication. In addition, Signal Corps troops assigned to field armies include units which provide *signal intelligence*, *photographic*, *pigeon*, *signal repair*, and *supply service*.

The Signal Corps provides message center, local messengers, and wire communication for headquarters, GHQ Air Force; headquarters all air force units down to include air wings, headquarters air bases, and for headquarters of air task forces.

The Signal Corps provides radio used solely for administrative purposes at headquarters, GHQ Air Force, air force headquarters of defense commands, and air base headquarters. The Signal Corps also installs and operates a signal supply establishment at each air base.

Signal Corps troops establish and operate the aircraft warning service in accordance with the instructions of the commander responsible for air defense measures.

The *signal intelligence service* is charged with the interception of enemy wire and radio transmission and the location, by radio position finding, of enemy radio transmitters operating on the ground and in airplanes. It is charged with the location of radio transmitters operating in violation of proclamations or orders, and with the interception of radio transmissions of friendly stations to detect violations of regulations governing the use of codes and ciphers and of radio procedure. The signal intelligence prepares and solves codes and ciphers.

■ 93. Wire (telephone, telegraph, and telegraph printer), radio, and messenger communication are the means of signal communication most frequently used. Other means of signal communication supplement and extend the service of these agencies.

■ 94. The Signal Corps exercises technical supervision over the entire signal service of the field forces. It supplies other arms and services with the technical equipment required for the installations of their own systems of signal communication.

CHEMICAL WARFARE SERVICE

■ 95. Troops of the *Chemical Warfare Service* engage directly in combat to assist other units of the field forces by the use of gas, smoke, and incendiaries.

■ 96. Chemical units are assigned to the GHQ reserve. They are attached to armies and lower units as the situation requires. They are profitably employed either in large units for large scale gas operations or in relatively small units for minor gas and smoke operations under division or lower unit control. A commander who attaches chemical units to units of the arms must restrict chemical operations so far as may be necessary to avoid interference by gas or smoke with the operations of other friendly troops.

CHAPTER 3

LEADERSHIP

■ 97. Leadership is based on knowledge of men.

■ 98. Man is the fundamental instrument in war; other instruments may change but he remains relatively constant. Unless his behavior and elemental attributes are understood, gross mistakes will be made in planning operations and in troop leading.

In the training of the individual soldier, the essential considerations are to integrate individuals into a group and to establish for that group a high standard of military conduct and performance of duty without destroying the initiative of the individual.

■ 99. War places a severe test on the physical endurance and moral stamina of the individual soldier. To perform his duties efficiently, he must not only be well equipped and technically trained but he must also be physically qualified to endure the hardships of field service and be constantly fortified by discipline based on high ideals of military conduct. Strong men, inculcated with a proper sense of duty, a conscious pride in their unit, and a feeling of mutual obligation to their comrades in the group, can dominate the demoralizing influences of battle far better than those imbued only with fear of punishment or disgrace.

■ 100. In spite of the advances in technology, the worth of the individual man is still decisive. The open order of combat accentuates his importance. Every individual must be trained to exploit a situation with energy and boldness and must be imbued with the idea that success will depend upon his initiative and action.

■ 101. The dispersion of troops in battle caused by the influence of modern weapons makes control more difficult. Cohesion within a unit is promoted by good leadership, discipline, pride in the accomplishments and reputation of the unit, and mutual confidence and comradeship among its members.

- 102. Leading troops in combat, regardless of the echelon of command, calls for cool and thoughtful leaders with a strong feeling of the great responsibility imposed upon them. They must be resolute and self-reliant in their decisions, energetic and insistent in execution, and unperturbed by the fluctuations of combat.
- 103. Troops are strongly influenced by the example and conduct of their leaders. A leader must have superior knowledge, will power, self-confidence, initiative, and disregard of self. Any show of fear or unwillingness to share danger is fatal to leadership. On the other hand, a bold and determined leader will carry his troops with him no matter how difficult the enterprise. Mutual confidence between the leader and his men is the surest basis of discipline. To gain this confidence, the leader must find the way to the hearts of his men. This he will do by acquiring an understanding of their thoughts and feelings, and by showing a constant concern for their comfort and welfare.
- 104. A good commander avoids subjecting his troops to useless hardships; he guards against dissipating their combat strength in inconsequential actions or harassing them through faulty staff management. He keeps in close touch with all subordinate units by means of personal visits and observation. It is essential that he know from personal contact the mental, moral, and physical state of his troops, the conditions with which they are confronted, their accomplishments, their desires, and their needs.
- 105. The commander should promptly extend recognition for services well done, lend help where help is needed, and give encouragement in adversity. Considerate to those whom he commands, he must be faithful and loyal to those who command him. A commander must live with his troops and share their dangers and privations as well as their joys and sorrows. By personal observation and experience he will then be able to judge their needs and combat value. A commander who unnecessarily taxes the endurance of his troops will only penalize himself. The proper expenditure of combat strength is in proportion to the objective to be attained. When necessary to the execution of the mission, the commander requires and receives from his unit the complete measure of sacrifice.

■ 106. A spirit of unselfish cooperation with their fellows is to be fostered among officers and men. The strong and the capable must encourage and lead the weak and less experienced. On such a foundation, a feeling of true comradeship will become firmly established and the full combat value of the troops will be made available to the higher commander.

■ 107. The combat value of a unit is determined in great measure by the soldierly qualities of its leaders and members and its will to fight. Outward marks of this combat value will be found in the set-up and appearance of the men, in the condition, care, and maintenance of the weapons and equipment, and in the readiness of the unit for action. Superior combat value will offset numerical inferiority. Superior leadership combined with superior combat value of troops constitutes a reliable basis for success in battle.

■ 108. A poorly trained unit is likely to fail in a critical moment due to demoralizing impressions caused by unexpected events in combat. This is particularly true in the first engagements of a unit. Therefore, training and discipline are of great importance. Every leader must take energetic action against indiscipline, panic, pillage, and other disruptive influences. Discipline is the main cohesive force that binds the members of a unit.

■ 109. A wise and capable commander will see that the men assigned to the component groups of his unit are compatible and that the composition of the groups is changed as little as possible. He will provide each group with a leader in whom its members have confidence. He will so regulate the interior administration of the unit that all groups perform the same amount of work and enjoy the same amount of leisure. He will see that demonstrated efficiency is promptly recognized and rewarded. He will set before all a high standard of military conduct and apply to all the same rules of discipline.

■ 110. Good morale and a sense of unity in a command cannot be improvised; they must be thoroughly planned and systematically promoted. They are born of just and fair treatment, a constant concern for the soldier's welfare, thorough training in basic duties, comradeship among men, and pride in self, organization, and country. The establishment

and maintenance of good morale are incumbent upon every commander and are marks of good leadership.

■ 111. The first demand in war is decisive action. Commanders inspire confidence in their subordinates by their decisive conduct and their ability to gain material advantage over the enemy. A reputation for failure in a leader destroys morale. The morale of a unit is that of its leader.

A commander must bear in mind that physical unfitness will undermine his efficiency. He owes it to the men under his command to conserve his own fitness. Neglect renders him unable to bring a normal mind to the solution of his problems, and reacts unfavorably on his whole command.

CHAPTER 4

THE EXERCISE OF COMMAND

DOCTRINES OF COMBAT

■ 112. The *ultimate objective* of all military operations is the destruction of the enemy's armed forces in battle. The ability to select objectives whose attainment contributes most decisively and quickly to the defeat of the hostile armed forces is one attribute of the able commander.

■ 113. Simple and direct plans and methods with prompt and thorough execution are often decisive in the attainment of success.

■ 114. Unity of command obtains that *unity of effort* which is essential to the decisive application of full combat power of the available forces. Unity of effort is furthered by full *cooperation* between elements of the command.

■ 115. Through offensive action a commander exercises his initiative, preserves his freedom of action, and imposes his will on the enemy. A defensive attitude may, however, be deliberately adopted as a temporary expedient while awaiting an opportunity for counteroffensive action, or for the purpose of economizing forces on a front where a decision is not sought. The selection by the commander of the right time and place for offensive action is a decisive factor in the success of the operation.

Numerical inferiority does not necessarily commit a command to a defensive attitude. Superior hostile numbers may be overcome through greater mobility, better armament and equipment, more effective fire, higher morale, and better leadership. Superior leadership often enables a numerically inferior force to be stronger at the point of decisive action.

A strategically defensive mission is frequently most effectively executed through offensive action. It is often necessary for an inferior force to strike at an early moment in order to secure initial advantages or to prevent itself from being overwhelmed by a growing superiority in the hostile forces.

■ 116. Concentration of superior forces, both on the ground and in the air, at the decisive place and time and their employment in a decisive direction, creates the conditions essential to victory. Such concentration requires strict economy in the strength of forces assigned to secondary missions. Detachments during combat are justifiable only when the execution of tasks assigned them contributes directly to success in the main battle.

■ 117. Surprise must be sought throughout the action by every means and by every echelon of command. It may be obtained by fire as well as by movement. Surprise is produced through measures which either deny information to the enemy, or positively deceive him, as to our dispositions, movements, and plans. Terrain which appears to impose great difficulties on operations may often be utilized to gain surprise. Surprise is furthered by variation in the means and methods employed in combat and by rapidity of execution.

Surprise often compensates for numerical inferiority of force.

Surprise finds the enemy in a state of mental, moral, or physical unpreparedness. Every effort should be made to deny him time to take effective countermeasures. The effect of surprise may be lost through dilatory methods of execution.

■ 118. To guard against surprise requires a correct estimate of enemy capabilities, adequate security measures, effective reconnaissance, and readiness for action of all units. Every unit takes the necessary measures for its own local ground and air security. Provision for the security of flanks and rear is of especial importance.

COMMAND

■ 119. Command is the authority which an individual in the military service lawfully exercises over subordinates by virtue of rank or assignment.

Command and leadership are inseparable. Whether the force is large or small, whether the functions of command are complex or simple, the commander must be the controlling head; his must be the master mind, and from him must flow the energy and the impulse which are to animate all under him.

■ 120. Decision as to a specific course of action is the responsibility of the commander alone. While he may accept advice and suggestions from any of his subordinates, he alone is responsible for what his unit does or fails to do.

■ 121. A willingness to accept responsibility is the foremost trait of leadership. Every individual from the highest commander to the lowest private must always remember that inaction and neglect of opportunities will warrant more severe censure than an error of judgment in the action taken. The criterion by which a commander judges the soundness of his own decision is whether it will further the intentions of the higher commander. Willingness to accept responsibility must not manifest itself in a disregard of orders on the basis of a mere probability of having a better knowledge of the situation than the higher commander. The subordinate unit is a part of a tactical team employed by the higher commander to accomplish a certain mission, and any independence on the part of a subordinate commander must conform to the general plan for the unit as a whole.

■ 122. The commander's mission is contained in the orders which he has received. Nevertheless, a commander of a subordinate unit cannot plead absence of orders or the non-receipt of orders as an excuse for inactivity in a situation where action on his part is essential, or where a change in the situation upon which the issued orders were based renders such orders impracticable or impossible of execution. If the situation does not permit communication with the superior commander and the subordinate commander is familiar with the general plan of operations or the mission of the whole command, he should take appropriate action and report the situation as early as practicable.

■ 123. The situations that confront a commander in war are of infinite variety. In spite of the most careful planning and anticipation, unexpected obstacles, frictions, and mistakes are common occurrences in battle. A commander must school himself to regard these events as commonplace and not permit them to frustrate him in the accomplishment of his mission.

■ 124. Personal conferences between the higher commander and his subordinates who are to execute his orders may at times be advisable, that the latter may arrive at a correct

understanding of the plans and intentions of their superior. Commanders do not justify their decisions to subordinates, nor do they seek the approval of subordinates for their actions.

■ 125. All the troops assigned to the execution of a distinct mission should be placed under one command, to function as a task force for the duration of the operation. So long as a commander can exercise effective command, he does not disturb the established chain of command in his force. In some situations, conditions dictate that attachments must be made to subordinate commands. Such attachments may be necessary in marches, during periods of development, in rapidly changing situations, or in the later stages of any action, and, in general, when better support or coordination can be effected.

■ 126. A commander who is advanced to a higher command should be relieved from the responsibility of direct command of his former unit.

ESTIMATE OF THE SITUATION

■ 127. In any tactical operation the commander must quickly evaluate all the available information bearing on his task, *estimate the situation*, and reach a decision.

■ 128. The commander's estimate of the situation is based on the mission of the unit, the means available to him and to the enemy, the conditions in his area of operations including terrain and weather, and the probable effects of various lines of action on future operations. (See FM 101-5.) On the basis of these factors he considers the lines of action open to him which, if successful, will accomplish his mission, and the lines of action of which the enemy is physically capable and which can interfere with such accomplishment. He analyzes the opposing lines of action, one against another, to arrive at conclusions as to the probability of success for each of his own lines of action. On the basis of this analysis he then considers the relative advantages and disadvantages of his own lines of action, and selects that line of action which most promises success regardless of what the enemy may do. If two or more lines of action appear equally promising, he chooses that one which will most favor future action.

■ 129. The estimate often requires rapid thinking, with consideration limited to essential factors. In campaign, exact conclusions concerning the enemy can seldom be drawn. To delay action in an emergency because of insufficient information shows a lack of energetic leadership, and may result in lost opportunities. The commander must take calculated risks.

■ 130. In considering the enemy's possible lines of action, the commander must guard against the unwarranted belief that he has discovered the enemy's intentions, and against ignoring other lines of action open to the enemy. Even when the weight of evidence warrants the belief that the enemy is committed to a definite line of action, the commander must bear in mind that a change in the enemy's plans may occur at any time.

■ 131. Because of their great mobility and rapid striking power, the capabilities of the opposing air and armored forces and the possible effect of their employment must be continually evaluated. In estimating the capabilities of air, armored, and motorized forces, both friendly and hostile, the commander must be provided with full and up-to-date information on the existing and probable future weather conditions and their effect, both ground and air, on employment of such forces.

■ 132. The estimate of the situation culminates in the decision. A decision once made is not changed without some compelling reason. In combat the will and energy of the commander must persist until the mission is accomplished. Estimation of the situation is, however, a continuous process, and changed conditions may, at any time, call for a new decision. Too stubborn an adherence to a previous decision may result in costly delay, loss of opportunity for decisive action, or outright failure.

TERRAIN

■ 133. That part of the commander's estimate dealing with *terrain* often exercises a decisive influence upon his decision and plan. Proper evaluation and utilization of the terrain reduce the disadvantage of incomplete information of the enemy. The more important features to be considered in evaluating terrain include not only natural ground forms such as mountains, ridges, streams, bodies of water, woods,

and open spaces, but also artificial features such as roads, railroads, and towns. The commander seeks always to utilize the terrain to his own advantage and to the enemy's disadvantage.

■ 134. While the mission of a force is the basic factor in the commander's estimate, this may frequently be resolved into terms of terrain. Thus, in the defense, it may be vital to hold certain dominating ground, or to protect a certain defile. Similarly, in the offense, success may hinge on the capture of such features which then become the immediate objective of the attack. Where possible, it is an aid to proper evaluation of the terrain to reduce the mission to terms of terrain.

■ 135. Maps are the basis for terrain studies, but should be checked by air reconnaissance, air photographs, and ground reconnaissance. Map errors must be expected. Moreover, changes in the terrain, especially in the road-net and drainage system, occur continually.

■ 136. *Terrain* can always be evaluated in terms of the following five factors: observation, fields of fire, concealment and cover, obstacles, and routes of communication.

a. Observation of the battlefield is essential in order to bring effective fire to bear upon the enemy, to control the maneuver of one's own troops, and to prevent surprise by the enemy. It is obtained from commanding elevations.

b. Fields of fire are essential to the defense. On the offensive, the commander seeks to make his main attack in areas lacking in good fields of fire to the defender. Best fields of fire are found in level or uniformly sloping stretches of open ground.

c. Concealment and cover may occur together. Concealment is protection against observation from the ground and air. Cover is protection against fire. The ideal defensive position is one having concealment and cover within but none in front of it. The attack is best favored by terrain affording good concealment throughout the depth of the advance. Concealment and cover, from ground weapons, are to be found in broken wooded terrain.

d. Obstacles are terrain features which impede the movement of military forces. They are of increasing importance in modern warfare where masses of mechanized units are employed. Although chiefly of advantage to the defense, they

may be of great importance in protecting the flanks of attacking units. Some of the common terrain obstacles are mountains, rivers, bodies of water, marshes, gullies, steep inclines, and extensive woods.

e. Routes of communication include roads, railroads, waterways and airways and their facilities. They are important in both offensive and defensive operations for the movement of troops and supplies. Troops in small bodies move across country readily, but in the operations of large bodies of troops, routes of communication are of vital importance.

■ 137. Features such as bridges, streams, woods, and towns divide practically all terrain into more or less separate areas. Such an area frequently consists of a valley lying between two ridges, or an open space between two woods. When the terrain features enclosing the area prevent direct fire and observation into it from positions outside, the area is called a *compartment*.

A compartment of which the longer axis extends in the direction of movement of a force, or leads toward or into a defensive position, is called a *corridor*. In general, a corridor favors the attack because it limits observation and direct fire from the flanks by the defender. From the standpoint of terrain, it is desirable that boundaries between tactical units in the attack should coincide generally with the boundaries of corridors in order that a single unit may control the terrain features from which direct fire can be brought to bear on troops within the corridor.

In the defense, boundaries are usually located within corridors. To assure unity of defensive dispositions, the boundary within the corridor should be so located as to include within the sector of a tactical unit of appropriate size avenues of approach to the position. To locate boundaries within an avenue of approach divides responsibility at critical areas.

A compartment which extends across the direction of movement of a force, or which extends parallel with a defensive front, is called a *cross-corridor*. Cross-corridors favor the defense. However, ridge lines perpendicular to the direction of advance permit an attacker to deal successively with elements of the hostile position. During the advance, these crests offer the attacker facilities for observation and fire, as well as shelter behind which he may reorganize his units.

- 138. See FM 101-5 for a detailed discussion of terrain.

CONDUCT IN BATTLE

■ 139. The commander's decision for his unit as a whole, and the missions to subordinate units in support of the decision, are communicated to subordinates by clear and concise orders, which gives them freedom of action appropriate to their professional knowledge, to the situation, to their dependability, and to the teamplay desired.

■ 140. After providing for the issuance of orders, the commander places himself where he can best control the course of action and exert his leadership. His command post affords the advantage of established signal communication. When opportunity offers and when his presence at the command post is not urgently required, he visits his subordinate commanders and his troops in order to inspire confidence and to assure himself that his orders are understood and properly executed.

■ 141. Whenever the commander leaves his command post, he should orient his staff as to further plans to be made or measures to be taken in anticipation of future contingencies, and should inform his staff where he can be reached.

■ 142. During the decisive phase of battle, the place of the commander is near the critical point of action.

■ 143. A commander influences the course of subsequent action by his leadership, by the use of his reserves, by the concentration of artillery and other supporting fires, and by the employment of combat aviation and armored units.

■ 144. The duration of a tactical operation can seldom be predicted. Successful engagements sometimes progress so slowly that the gains made are not immediately apparent. At other times, they progress so fast that the gains made can be capitalized only by the most aggressive and farsighted leadership.

Troops are used up rapidly in the decisive phases of combat. This attrition must be anticipated by the commander and his staff who take timely measures for replacement of men, units, transport, and weapons, and for replenishment of ammunition and other supplies. When the situation permits, troops which have been heavily engaged are rested and reorganized before being assigned a new and important mission.

STAFF

■ 145. The staff assists the commander, to the extent that he may require, by providing information, data, and advice; by preparing detailed plans and orders in accordance with his directions; and by exercising such supervision over the execution of his orders as he may prescribe. A staff officer, as such, does not exercise command.

■ 146. The staff may be divided into two groups—the *general staff* and the *special staff*. In large units these two staff groups are separate and distinct; in smaller units they merge into each other, and one staff officer frequently is charged with duties pertaining to both staff groups.

■ 147. In every headquarters there is a constant tendency to multiply personnel, expand the functions of staff administration, and accumulate records and office equipment. *The commander must avoid this expansion.* He must organize his headquarters so as to maintain its readiness for prompt movement.

■ 148. The organization, functions, and duties of the various sections of the staff and the employment and duties of liaison officers are prescribed in FM 101-5.

COMBAT ORDERS

■ 149. The authority to issue orders is an inherent function of command. Orders are normally issued to next subordinate commanders. Bypassing the normal channels of command is resorted to only in urgent situations; in such cases both the commander issuing and the commander receiving the order should notify intermediate commanders of its purport as soon as possible.

■ 150. Orders may be either complete or fragmentary.

The order is *complete* when it covers all essential aspects and phases of the operation. Complete orders include missions to all subordinate units charged with the execution of tactical operations in carrying out the commander's plan.

Fragmentary orders are used when speed in delivery and execution is imperative. Fragmentary orders are issued successively as the situation develops and decisions are made, and consist of separate instructions to one or more subordinate

units prescribing the part each is to play in the operation or in the separate phases thereof. This procedure will be usual in divisions and smaller units. Fragmentary orders may be either oral or written. They are concise but not at the expense of clarity and omission of essential information. Instructions issued in fragmentary orders may be repeated in a complete field order or in an annex if considered desirable.

■ 151. Orders should be originated sufficiently early and transmitted in such form as to permit subordinate commanders the maximum periods to reconnoiter, to estimate their own situations, to issue their orders, and to prepare their troops for the contemplated operation. Commanders should be alert to forestall delays in the successive dissemination of orders in their lower echelons.

■ 152. In many situations it may be necessary or desirable to issue an order to warn of impending operations (warning orders). A warning order contains information which enables subordinate commanders to make preparations for a contemplated operation. Its principal purpose is to gain time for preparatory measures and to conserve the energy of the troops.

■ 153. An order should not trespass upon the province of a subordinate. It should contain everything that the subordinate must know to carry out his mission, but nothing more.

■ 154. Orders must be clear and explicit and as brief as is consistent with clarity; short sentences are easily understood. *Clarity is more important than technique.* The more urgent the situation, the greater the need for conciseness in the order. Any statement of reasons for measures adopted should be limited to what is necessary to obtain intelligent cooperation from subordinates. Detailed instructions for a variety of contingencies, or prescriptions that are a matter of training, do not inspire confidence and have no place in an order. Trivial and meaningless expressions divide responsibility and lead to the adoption of half measures by subordinates. Exaggerated and bombastic phrases invite ridicule and weaken the force of an order. Expressions such as "attack vigorously," if used in orders, are not only verbose and meaningless, but tend to weaken the force of subsequent orders in which such expressions do not appear.

■ 155. Orders should prescribe only so far as conditions can be foreseen. Orders which attempt to regulate matters too far in the future result in frequent changes. Frequent changes in orders overload the means of signal communication, cause confusion and misunderstanding, impose needless hardships on the troops, and injure their morale.

Orders issued by subordinates should not be mere repetition of those from higher authority with additions of their own. New orders are clearer and more satisfactory.

■ 156. As a rule it is desirable to keep contemplated operations secret as long as possible and to confine knowledge thereof to a few staff officers and senior commanders. However, upon entry into action no unit should be in doubt as to what the commander wants it to do. Whenever knowledge of his intentions is necessary to insure the cooperation of the units engaged, a commander does not hesitate to disclose them to all concerned. Ignorance of his intentions may often lead to inactivity on the part of subordinates.

■ 157. It is impossible to prescribe detailed forms of orders to fit every tactical situation. To attempt to do so would result in a rigid form and a routine style of expression which would not be in accord with the tactical requirements presented by the diverse situations that arise in war. To the extent practicable, however, it has been found efficient and convenient to classify combat orders according to their purpose and scope and, for some of these, to adopt a standard sequence of composition. This makes for ease of understanding, the avoidance of omissions, and ready reference. Moreover, experience has shown that an order which can be misunderstood will be misunderstood and that, to obviate this danger, it is necessary to follow certain rules relating to the designations of boundaries, details of time and place, military terminology, abbreviations, designations of units, and the like. For details relating to these matters, see FM 101-5.

■ 158. *Annexes* may be issued to accompany combat orders, either for brevity, clarity, or simplicity—for example, maps, overlays, photographs, and sketches—or to amplify particular aspects of the operation, if the volume of detail is too great for inclusion in the order itself. The more mobile the operation, the less opportunity there will be for annexes. Where an annex has limited distribution, certain instructions

contained therein must be repeated in order to insure coordination.

■ 159. In every unit, *standing operating procedure* is prescribed by the commander whenever practicable. This procedure covers those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The adoption of such procedures will save time in the preparation and issuance of orders, minimize the chances for confusion and errors when under stress of combat, and greatly simplify and expedite the execution of operations in the field. (See FM 101-5.)

COMMAND POSTS

■ 160. For convenience of operation in campaign, the headquarters of a large unit is divided into a forward and a rear echelon. When desirable, headquarters of smaller units may be similarly divided.

The forward echelon consists of the staff agencies immediately required by the commander for assistance in tactical operations. The rear echelon consists of the remaining staff agencies which have administrative duties.

■ 161. The *command post* is the location of the forward echelon of a headquarters. All agencies of signal communication center at the command post.

■ 162. In the selection of a command post, consideration is given to the disposition of troops in the plan of operations, routes of communication, requirements of signal communication, space for staff activities, cover, and concealment. In the case of divisions and larger units, the presence of existing wire lines is important.

Remote location of a command post with respect to subordinate units places an unnecessary burden on the means of signal communication, delays the transmission of orders and information, and makes tactical control difficult.

Through the use of motor transport a command post can be moved quickly over a considerable distance. Frequent changes in the location of the command post are avoided, particularly in large units. In large units, before a change of location is made, the necessary means of signal communication for the new command post must be established.

■ 163. A commander must keep superior and subordinate units informed of the location and contemplated movement of his command post.

■ 164. Each large unit announces the location of its command post and, when practicable, the location of the command post of each of its major subordinate units. In rapidly moving situations, it may be necessary to direct subordinate units to select and report the locations of their own command posts. In closely coordinated operations requiring the movement of command posts, each large unit may designate its own axis of signal communication by naming the probable successive locations of its command post, so far as such locations can reasonably be foreseen, and may similarly assign an axis of signal communication to each of its major subordinate units.

■ 165. On the march, a command post may move by bounds along a designated route, or it may move at a designated place in a column.

■ 166. In combat, the location of command posts for small units in proximity to a good observation post, and for large units in proximity to a suitable landing field is desirable.

■ 167. The ability of mechanized units and parachute troops to strike quickly in rear areas indicates the necessity of locating command posts well forward, both in the offense and defense. A forward location assures a certain degree of all around protection by the combat troops; the command post will not so easily be cut off from the units it controls and the nerve center of the command is favorably located to meet rapidly changing situations.

■ 168. The maintenance of secrecy as to the location of command posts, particularly of large units, is of great importance. They are the special objectives of hostile airplanes, mechanized units, parachute troops, and cavalry. This threat makes it necessary not only to provide security against surprise attack from either the air or ground, but also to use great care not to disclose their locations to such troops. Concealment from the air is of major importance. Traffic in and out of command posts is rigidly controlled. Landing fields, dropping and pick-up grounds, and radio stations are placed at a distance. Signs to mark their locations and the

routes thereto are used sparingly—when the danger is great, not at all; in place of signs, guides are posted to point the way and messengers are given more precise instructions.

SIGNAL COMMUNICATION

■ 169. The efficient exercise of command and the prompt transmission of information and instructions require the establishment of reliable means of signal communication. Signal communication is effected by technical means and by messengers. Entire dependence cannot be placed upon any one means; alternate means must be provided. (See FM 24-5 and FM 11-5.)

■ 170. Every commander is responsible for the establishment and maintenance of the signal communication system of his unit and for its efficient operation as a part of the system of the next higher command. Signal communication systems must be simple, flexible, and properly used.

The establishment and maintenance of signal communication between superior and subordinate units is the responsibility of the superior commander; between adjacent units, as directed by their common superior. A unit supporting another by fire is responsible for the establishment and maintenance of signal communication with the supported unit.

■ 171. The various means of signal communication are so employed that they supplement each other. Those requiring great expenditure of effort and matériel are not installed when the service required can be effectively performed by less elaborate means.

■ 172. When headquarters are in movement, signal communication is maintained between and within columns by means of vehicular radio, airplanes, and motor or mounted messengers.

■ 173. The command posts and advance message centers are the control points in the initial installation of the signal communication system. Early information is given to the signal or communication officer of a unit relative to projected operations and the location and movement of command posts, in order to facilitate the prompt establishment of signal communication. The necessary instructions therefor are prepared by the unit signal or communication officer, in accord-

ance with the directions of the commander. Communication officers of higher units maintain close cooperation with the signal or communication officer of the subordinate unit.

■ 174. *Message centers* are operated at the command posts of all units down to and including battalions, and at the rear echelons of headquarters of large units, by the signal communication personnel of the command. Message centers assist the commander and staff by coordinating the transmission of outgoing orders, reports, and other messages with the available signal agencies, and by expediting the delivery of incoming messages. In general, the cryptographing and de-cryptographing of messages are the responsibility of the message center.

■ 175. *Advance message centers* are established whenever needed for the reception and relay of messages. Information as to their location is always transmitted to the troops.

Advance message centers are frequently employed in the reconnaissance operations of large units as collecting points for messages of several reconnaissance detachments.

■ 176. The message center is not responsible for those messages which are—

a. Transmitted directly by the writer to the addressee by telephone or personal agency.

b. Handled by the military or civil postal service.

c. Local messages between staff sections of the same headquarters located at the same place.

■ 177. The message center transmits messages in accordance with the classification as to urgency indicated by the writer. For classification of messages in accordance with the urgency of handling, see FM 101-10.

■ 178. The writer does not ordinarily designate the particular means by which a message is to be sent. If he desires a message transmitted by a particular means, he so marks it.

■ 179. Means of signal communication include wire, radio, visual and sound communication, pigeons, airplanes, and messengers.

■ 180. Wire communication (telephone, telegraph, and telegraph printer) constitutes the basic technical means of

signal communication for the infantry division and the larger unit headquarters. It will not, however, always be available for signal communication between forces operating at a considerable distance from each other, between troop units and the higher command on the march, and between the advanced troops and the rear in combat. Rapidly changing situations, such as a pursuit or retreat, restrict the practicability of its employment. The possibility of failure to function in critical situations must also be reckoned with. A wire system must, therefore, be supplemented by other means.

Although wire communication is a relatively safe means, there is always the possibility of hostile interception. When such interception is practicable it is inadvisable to employ wire communication for the transmission in clear text of plans which are not to be executed immediately.

■ 181. Radio communication is especially applicable in spanning distances between widely separated mobile forces, between ground and air, and in the fire-swept zone of the forward area. It is less vulnerable than wire communication to hostile fire, and is, therefore, a valuable supplement to wire systems in combat. It is subject, however, to static, to hostile interference, to interception, and to location by the enemy.

Interception of radio messages must be presumed. Discretion must be used even in the sending of messages in code or cipher. When prompt action is called for, the commander must decide whether the urgency of sending the message in the clear outweighs the value to the enemy of information contained therein. Radio transmission in the clear is justified in situations when the time available to the enemy is insufficient for exploitation of the information contained in the message.

During certain phases of operations, use of radio must be rigidly restricted or it may even be prohibited by higher commanders.

■ 182. Visual signal communication (lamps, flags, pyrotechnics, panels) is not suitable for long messages or over long distances but finds especial application for communicating within and between small units and with airplanes by a few short signals in accordance with a prearranged code. (See FM 24-5.)

- 183. Sound communication is used chiefly to spread an alarm, as a means to attract attention, and to transmit short, prearranged messages.
- 184. Homing pigeons are a means of communicating from front to the rear when other means have failed.
- 185. Airplane messengers may be employed when distance, intervening obstacles on the ground, or other factors of the situation prevent the use of other means, or when more rapid transmission is required than can be otherwise accomplished.
- 186. Signal communication between airplanes and ground is accomplished by means of radio, visual signals, and drop and pick-up messages. In combat, dropping and pick-up grounds are established near unit command posts as required. On the march, they are established near the location of higher commanders and at points along the route of march. Dropping and pick-up grounds are identified by the display of panels. Moving vehicles designated to receive dropped messages are provided means by which they can be easily identified from the air. Airplanes in flight may be used to relay radio messages between ground forces.
- 187. Sole reliance cannot be placed upon the technical means of signal communication. Their absence or failure to function does not relieve the commander of his responsibility of keeping higher, lower, and adjacent units informed of the situation. Each commander provides for the transmission of orders, information, and reports by means of messengers.
- 188. Messengers are dispatched by the most efficient means of transport available. In hostile territory it may be advantageous to use airplanes or armored vehicles, or to provide an armed escort. In combat, mounted, bicycle, motorcycle, and motor messengers are employed as far forward as hostile fire and the terrain will permit. Runners are used in the more advanced units.
- 189. For covering long distances, relays of messengers may become necessary. When relays are established, relay (connecting) posts are generally placed at well-marked points on the messenger routes.
- 190. Important messages are often sent by two or more messengers, who travel separately. Officers are employed for

the transmission of important messages when explanation relative to the situation or additional information is required.

■ 191. The officer or noncommissioned officer dispatching a messenger gives him necessary instructions (destination, route, rate of movement, dangerous points to be avoided, place where he is to report after delivery of the message). This is of especial importance when secrecy precautions prevent the use of directional signs. (See par. 168.)

■ 192. Messengers have the right-of-way and must be given all practicable assistance. All commanders will assist messengers in expediting delivery of messages.